

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number
WO 2004/091114 A1

(51) International Patent Classification⁷: **H04B 7/005**,
H04L 1/18

(74) Agent: **MAGNUSSON, Monica**; Ericsson AB, Patent
Unit Radio Networks, S-164 80 Stockholm (SE).

(21) International Application Number:
PCT/SE2004/000541

(22) International Filing Date: 6 April 2004 (06.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0301076-6 8 April 2003 (08.04.2003) SE

(71) Applicant (for all designated States except US): **TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)**
[SE/SE]; S-164 83 Stockholm (SE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BEMING, Per** [SE/SE]; Frejgatan 58, STOCKHOLM, 113 26 (SE). **PARKVALL, Stefan** [SE/SE]; Sigtunagatan 18, STOCKHOLM, 113 22 (SE). **SUNELL, Kai-Erik** [SE/SE]; Drevkarsstigen 1, 9 tr, SOLLENTUNA, 192 53 (SE). **ENGLUND, Eva** [SE/SE]; Arbetaregatan 4A, LINKÖPING, 582 52 (SE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

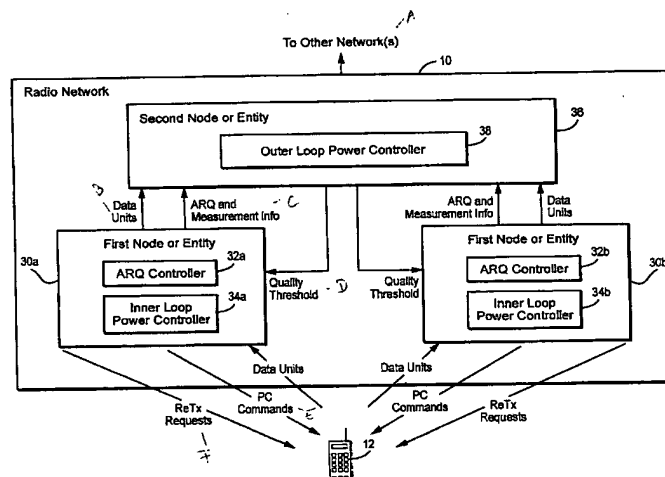
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,

[Continued on next page]

(54) Title: POWER CONTROL AND AUTOMATIC REPEAT REQUEST (ARQ) IN A RADIO COMMUNICATIONS SYSTEM



(57) Abstract: A radio network entity in charge of outer loop power control for a communication with a mobile radio is informed about erroneous data units, requested retransmissions, and/or data units transmission attempts associated with the data units sent by the mobile radio to the radio network. Another radio network entity, which sends a transmission power control signal to the mobile radio to control the mobile's transmit power level based on a target value, detects errors in data units received from the mobile radio and requests retransmission. Information associated with the requested retransmission is used to generate a revised target value. The target value may be revised by an outer loop power controller node or by an outer loop power controller entity in the same node as an ARQ entity that generates the information about erroneous data units, requested retransmissions, and/or data units transmission attempts associated with the data units sent by the mobile radio to the radio network.



CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designation US

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designation US
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designation US
- of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.